

As a user of GPS technology in both my professional and private endeavors, I respectfully request the Federal Communications Commission **NOT APPROVE** the current LightSquared request to affirm the previously granted conditional waiver and use of spectrum adjacent to the current GPS spectrum.

I use GPS technology in both my personal and professional lives. GPS is the heartbeat of many of my ventures and projects. Interference to the GPS service would be catastrophic. Several life saving systems are at risk of being ineffective or useless should the interference from LightSquared or any system be allowed to jam or interfere with GPS signals.

In my personal / volunteer life I work with several non-government organizations (NGOs) providing communications and other technical support. During hurricanes recovery and other events I have personally used GPS to provide detailed road and condition reports. The report data has been used to provide relief logistics to groups such as The American Red Cross, Amateur Radio Emergency Services (ARES), Salvation Army, Baptist Relief Organization, Florida Department of Transportation, Florida Department of Emergency Management, local Emergency Operations Center (EOC) Emergency Managers, and others typically for areas outside my home base area. *The GPS datum gathered has provided information when road signs, landmarks and other navigational aids have been destroyed or absent.* In short, without GPS the expeditious relief efforts to event victims might not have been possible or at least delayed several hours. It should be noted that in most instances national responding agencies and their personnel are not familiar with the area they are assigned. *Navigational aids are a lifeline to these personnel.* An example is the food canteen attempting to arrive at a specific location to provide food and water to those in need. Without GPS the driver might have become lost, stranded, or worse.

Other tools which rely on GPS technology include the Amateur Radio Automatic Packet Reporting System (APRS). This system is tied to the internet via interlinked fixed stations to provide a mapped location for vehicles and assets as they travel. The system uses GPS data from the traveling vehicles to provide automatic GPS positions which are displayed on special websites (www.aprs.fi and www.aprs.org). The GPS data can provide response planners with locations, speeds, and other data to aid with scheduling and tracking of responders and assets during events.

Similar to the APRS system is the Florida (and other states) 511 system which employ GPS based automatic vehicle location (AVL) to generate travel times, traffic alerts, and other data. The data is used to provide the traveling public with accurate information regarding delays and travel times.

AVL is also used by first responders to not only track their assets including ambulances, fire trucks, police vehicles, etc. but record speeds and other data. This tool affords dispatchers and management the ability to provide better response times by routing responders around congestion and other potential delays.

Wilderness fire fighters rely on GPS for data to keep their crews safe as well as logistics and operations functions.

Most states also use GPS for sign and signal locations. The database generated over several years allows emergency contractors to respond and replace or repair specific signs and signal after hurricanes and other events. The ability to respond quickly during the recovery phase of an event with infrastructure repairs is monumental to the overall mission.

For the general public, GPS is a tool that has become transparent. There is a level of expectation that their cell phone, vehicle navigation, or other GPS enabled devices will operate as expected. The GPS service has become engrained in our everyday life from public use in travels to critical life saving efforts. Interference to the GPS service would cause harm to several facets of our everyday lives and jobs. Most see the GPS service as a mechanism of providing vehicle or recreational navigation. Most citizens do not give much thought to the GPS services provided by our current system. The hidden values include the applications and systems developed to use the GPS signals provided by the satellite constellation.

Several of the critical, life saving GPS based, applications in use today includes;

1. Emergency Position Indicating Radio Beacon (EPIRB), Emergency Locator Transmitter (ELT), SPOT (ref - <http://www.beaconregistration.noaa.gov/>), OnStar, and other locator services.
- Mandated Next-Gen 911 system which utilizes caller supplied GPS data to automatically provide location information of the device (caller) placing the call.

Because GPS works so well the public takes little notice of the service and expects their devices to work as advertised.

GPS has become a tool which is relied on daily to assist with the preservation of life and property. GPS is a tool the average citizen cannot live without.

Examples of these include:

- Geo-coding of images (camera images with GPS datum embedded) and other GPS logging functions
- GPS tracking of assets
- GPS location of sign and other asset inventory for state and local governments
- GPS location of underground utilities and running lines (Florida one-call system)
- Life saving devices including Emergency Position Indicating Radio Beacon (EPIRB), Emergency Locator Transmitter (ELT), SPOT (ref), OnStar,
- Data collecting devices such as the infamous aircraft black box flight recorders and others
- Computer network timing receivers (time standards)
- Search and rescue (SAR) efforts from airborne platforms (Civil Air Patrol, Coast Guard, etc.)

Receiver sensitivity is paramount to any successful communications system when using satellite based sources and low signal levels. The LightSquared base stations could raise the received GPS receiver noise floor levels due to the (LightSquared base station) power emissions, proximity, and possibly cumulative effects of several nearby base stations, rendering most receivers useless. This includes the licensed GPS

CORS reference receivers used in several states (ref – www.dot.state.fl.us/surveyingandmapping/gps.shtm).

Noise floor increase with proximity to the LTE transmitter where as the received GPS satellite signal has much lower signal strength compared to the LTE base stations. Applying filters might provide some relief however the electrical properties of filters for adjacent bands can cause attenuation of the desired receive band thus lowering the received GPS signal to a threshold below a value useable by the (GPS) equipment.

Although probably addressed by the DoD and NTIA, I wonder what restrictions LightSquared might face when attempting to deploy in one of the many Federal Radio Quiet zones. In the State of Florida most of the area is within one of several zones. This is true for several other areas of the country.

In closing, GPS has become one of the most successful services ever provided by the U.S. government. Similar systems are being added to the GPS constellation by other countries to augment accuracy and reliability. With so many systems reliant on the signal provided by GPS, approving any type of potentially interfering service would be a mistake on several levels.

Thank you for your consideration,

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